

## EDITORIAL

### Sulfonamide-Resistant Meningococci

EVER SINCE the early observations regarding the effectiveness of sulfonamides in the treatment and prophylaxis of meningococcus infections, these drugs have been regarded as the first and unfailing recourse in this disease. Some authorities have recommended the use, additionally, of penicillin, in case some strains might be resistant to sulfonamides—usually with the comment that resistant strains had escaped detection.

Recently Millar et al (J.A.M.A. 186:139, Oct. 12, 1963) reported the isolation of strains of meningococci which were resistant to sulfonamides and did not respond adequately to treatment with these drugs. Failures have been noted, especially in mass prophylaxis, with diminished effect in the reduction of carriers. Thus far, these results have not been encountered commonly in civilian populations but have occurred in military personnel, among whom chemoprophylaxis has been employed extensively.

Conceivably the use of mass prophylaxis may have been the very mechanism by which the emergence of resistant strains has been induced.

A disturbing possibility is that this information may lead clinicians to abandon the use of sulfadiazine and sulfasoxazole (Gantrisin®) completely and to rely on the use of penicillin alone in the treatment of these highly fatal and fulminant infections. Some strains of meningococci are resistant to penicillin. In a number of instances, some of which are a matter of my personal knowledge, the employment of the usual dosage of procaine penicillin in the treatment of unexplained fever has been followed in two or three days by progressive meningococcus disease, sometimes with petechiae and other evidences of meningococcemia.

The course of meningococcus disease does not usually provide, on the basis of sensitivity tests, the opportunity to determine the most appropriate drug for treatment. The diagnosis can be established often on immediate evidences which are as definitive as the results of bacteriological culture (petechial rash,

profound toxemia, direct smears from petechial puncture or from the spinal fluid). The choice of an antimicrobial agent, thus, must be a matter of clinical empiricism, the agents most likely to be successful being promptly employed.

These infections constitute medical emergencies. Death or serious damage may result in a very few hours. There is no reason to debate the single best antibacterial agent; it is preferable to select a combination of drugs which can be given promptly with some assurance of success. Treatment usually should be by the intravenous route and, providing that reasonably generous amounts of intravenous fluid are given along with the therapeutic agent, medication is devoid of risks which are disproportionate to the mounting danger of the disease.

In the light of present knowledge, it would seem appropriate not to abandon sulfonamide therapy but to combine this with the use of penicillin. The use of procaine penicillin in doses of 300,000 to 600,000 units is inadequate: Along with adequate intravenous dosage of sodium sulfadiazine or sulfasoxazole (5 to 6 gm over a 24-hour period for adults), aqueous penicillin G in dosage of 20 million units in 24 hours should be given by continuous drip. Similar dosage should be continued for the next week, and then be gradually reduced in the ensuing few days.

EDWARD B. SHAW, M.D.

### C.M.A.'s Audio-Digest— A Decade of Progress

IT HAS BEEN a full decade now since the House of Delegates of the C.M.A. adopted a local, small-scale experiment in continuing postgraduate medical education. The experiment's name: The Audio-Digest Foundation. Its avowed purposes: To provide the practicing physician with a convenient mode of continuing home and office postgraduate

medical education, via a series of subscription tape recordings, and to contribute any accrued financial surpluses to the American Medical Association Education and Research Foundation or any other foundation devoted to similar objectives.

Since December of 1953, when Audio-Digest Foundation became an official non-profit subsidiary of the C.M.A., how well has this experiment succeeded? A critical review of the Foundation's progress over these ten years would indicate that it has not only been of inestimable assistance to physicians striving to keep up with medical progress, but has also added immeasurably to the prestige and image of the California Medical Association in all parts of the world. Among the impressive evidences of this:

Audio-Digest began with a handful of subscribers, most of them members of the C.M.A. Now, the subscription rolls have spilled out of California into all 50 states and into every corner of the globe: United States Army and Navy and the Department of State send them to such isolated stations as the South Pole and Saudi Arabia. The Christian Medical Society forwards the tapes to missionary physicians on duty in Africa and Borneo. And individual subscribers are scattered among such distant places as France, Haiti, Japan, Australia, New Zealand and Hong Kong. American Pharmaceutical Association traveling representatives even report seeing Audio-Digest boxes at the Pavlov Institute of Russia. And (perhaps to check up on what the Russians are hearing) the U. S. Central Intelligence Agency subscribes, as well.

In the past year, the University of Sydney (Australia) has been granted permission to use portions of the tapes for a newly-inaugurated closed-line medical education radio network that is heard each week by nearly 4,000 Australian physicians and surgeons.

From a beginning total of 13 original subscribers, Audio-Digest's monthly circulation has exploded to include more than 35,000 private physicians, hospitals, clinics and medical school teaching centers.

The Foundation began with a single weekly service shaped principally for general physicians. Because of physician demand, and the remarkable success of the original service, six additional subscription services have been added for the specialties of internal medicine, obstetrics and gynecology, pediatrics, surgery, anesthesiology and—just in the past few months—ophthalmology.

Audio-Digest tapes have been so unusual an addition to existing media of postgraduate medical education that the editors of *Time*, *Life*, *Saturday Evening Post*, *Reader's Digest*, and the *Wall Street Journal* have featured the service in full length

articles. Special editorials in the country's most distinguished medical journals have called attention to the service, best exemplified perhaps by the *New England Journal of Medicine's* comment: "California is maintaining its reputation for doing things in a big way: high, wide, and handsome."

Audio-Digest could not have come to its present stature without the wisdom, the energy and force of direction that is supplied by personnel. Dr. Donald D. Lum of Alameda is president of the Audio-Digest Foundation, and Mr. K. L. Hamman of Oakland is treasurer. The Foundation's Trustees are Drs. Carl E. Anderson, Santa Rosa; Gordon Beckner and Thomas H. Brem, Los Angeles; James C. Doyle, Beverly Hills; William D. Evans, Los Angeles; Ivan C. Heron and Samuel R. Sherman, San Francisco; Robert L. Marsh, Glendale; John W. Pender, Palo Alto; and Omer W. Wheeler, Riverside. From the beginning the Audio-Digest enterprise has been dynamically directed and its programs produced by Mr. Claron L. Oakley, with assistance from Mr. Jerry L. Pettis, who first conceived the idea of postgraduate medical education by means of tape recordings.

In recognition of the medium's vast educational potential, more than 100 internationally-famed specialists have volunteered to serve on the Foundation's Editorial and Advisory Board. In addition, the nation's leading medical schools and specialty organizations have opened their doors to Audio-Digest to tape-record entire portions of their clinical meetings and postgraduate refresher courses for the purpose of sharing them with Foundation subscribers.

The kind of devotion Audio-Digest nurtures among its far-flung subscribers is evident in the fact that its annual renewal rate (over 80 per cent in some services and an average of 75 per cent for all seven services) is higher than most magazines and journals selling for as little as four dollars a year. This, despite the fact that an annual subscription to a specialty service costs the subscriber \$73.35, and to the weekly general practice service \$145.80.

The tapes are used across the country for weekly Journal Clubs of hospitals, county medical societies and small-town professional group meetings. They are heard by physicians while they shave in the morning; while they prepare for bed at night; while they work at their hobbies in a garage or den; even by one diligent Wyoming doctor in his airplane as he flies on house calls through the desolate Teton range. About one-fourth of the subscribers rig up their recorders to listen to the tapes in their automobiles.

The international prestige Audio-Digest is bringing to the C.M.A. is illustrated by a letter from the

chief of surgery at the U. S. Naval Hospital at Yokosuka, Japan: "Not only we, but also our Japanese friends, gratefully receive Audio-Digest each week. We loan the tapes to several Japanese hospitals, then send them on to the American University in Beirut. Weekly Audio-Digest conferences have been set up at these Japanese hospitals, where approximately 150 doctors in small groups attend. The program has done a great deal to aid in professional relationships with our Japanese colleagues and has helped Japanese physicians in their study of medical English and American surgical thinking. Through these channels, Audio-Digest has aided in advancing toward the goal for which we are all working—namely, closer ties between the American and Japanese people."

From the medical director of the Agana (Guam) Memorial Hospital: "I deem it my duty to sit down today to pay a tribute to your excellent service. I

can truthfully say that a few lives have been saved among my own patients because of your lectures by men like Champ Lyons and George Crile. . . . The wealth of information in each tape never fails to bring to my attention a diagnostic or therapeutic approach that, otherwise, I would have overlooked. The rewards are, literally, human lives saved."

Perhaps, in reviewing the Audio-Digest Foundation's unique accomplishments of the past decade, a letter from the Decatur and Mason City Hospital in Decatur, Ill., best sums up the place this service has made for itself in the esteem of its thousands of subscribers: "The staff and residents alike of our department send their sincere thanks for this service and their best wishes for its continued success. Believe me, the entire medical profession owes the California Medical Association a real unpayable debt for this significant contribution of Audio-Digest."

